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TITLE: Recombinant combinatorial genetic library for the production of novel polyketides

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CLAIMS:

We claim:

1. A library for synthesis of a multiplicity of polyketides which library comprises

a multiplicity of individual cell lines wherein each cell line produces a functional polyketide synthase (PKS) such that each said cell line produces a different polyketide;

wherein each functional PKS comprises the products of: a first open reading frame (ORF) encoding a ketosynthase/acyltransferase (KS/AT); a second ORF encoding an acyl carrier protein (ACP); and a third ORF encoding a chain length determining factor (CLDF);

wherein the ORFs in said library are derived from at least three different aromatic PKS.

2. The library of claim 1 wherein at least some of said multiplicity of cell lines further include

an ORF encoding a polyketide cyclase (CYC); and/or an ORF encoding polyketide aromatase (ARO); and/or an ORF encoding a polyketide ketoreductase (KR).

3. The library of claim 1 which includes colonies wherein the functional PKS comprises the product of at least one of:

| ORF1 (KS/AT) | ORF2 (CLDF) | ORF3 (ACP) |
|---|---|---|
| act | act | act |

| gra | act | act |
|-----|------|------|
| act | gra | act |
| act | act | gra |
| tcm | act | act |
| tcm | tcm | act |
| act | act | tcm |
| fren | act | act |
| act | act | fren |
| tcm | tcm | tcm |
| fren | fren | act |
| fren | fren | fren |

4. The library of claim 1 wherein said cell line further comprises an enzyme that is active on a PKS and is selected from the group consisting of an O-methyl transferase and glycosyl transferase.

5. The library of claim 1 wherein in at least one member of said library each said open reading frame is contained in a separate expression cassette.